

This document gives pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a minor, municipal permit. The discharge results from the operation of a 0.0025 MGD wastewater treatment plant, including a proposed expansion to 0.0395 MGD. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260-05 et seq.

1. Facility Name and Mailing Address: Ferguson Sewage Treatment Plant  
P.O. Box 153  
Brandy Station, VA 22030  
  
Facility Location: 17311 Brandy Road  
Culpeper, VA 22701  
  
Facility Contact Name: Donald Hearl / ESS  
Telephone Number: 540-825-6660  
  
SIC Code : 4952 WWTP  
County: Culpeper
2. Permit No.: VA0062529  
Other VPDES Permits: Not Applicable  
Other Permits: Not Applicable  
E2/E3/E4 Status: Not Applicable  
  
Current Expiration Date: October 28, 2007
3. Owner Name: Martha Ferguson  
Owner Contact/Title: Martha Ferguson / Owner  
Telephone Number: 703-898-7199
4. Application Complete Date: May 21, 2007  
Permit Drafted By: Susan D. Mackert  
Date Drafted: August 30, 2007  
April 14, 2008  
  
Draft Permit Reviewed By: Alison Thompson  
Date Reviewed: September 10, 2007  
April 19, 2008  
  
Public Comment Period: Start Date: May 7, 2008  
End Date: June 6, 2008
5. Receiving Waters Information: See **Attachment 1** for the Flow Frequency Determination  
Receiving Stream Name: Jonas Run, UT  
Drainage Area at Outfall: 2.0 square miles  
River Mile: 0.76  
Stream Basin: Rappahannock River  
Subbasin: None  
Section: 04  
Stream Class: III  
Special Standards: None  
Waterbody ID: VAN-E09R  
7Q10 Low Flow: 0.0 MGD  
7Q10 High Flow: 0.0 MGD  
1Q10 Low Flow: 0.0 MGD  
1Q10 High Flow: 0.0 MGD  
Harmonic Mean Flow: 0.0 MGD  
30Q5 Flow: 0.0 MGD  
303(d) Listed: No  
30Q10 Flow: 0.0 MGD  
TMDL Approved: downstream of Outfall – Mountain Run  
Date TMDL Approved: April 27, 2001
6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:
 

<u>✓</u> State Water Control Law <u>✓</u> Clean Water Act <u>✓</u> VPDES Permit Regulation <u>✓</u> EPA NPDES Regulation	<u>        </u> EPA Guidelines <u>✓</u> Water Quality Standards <u>        </u> Other
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7. Licensed Operator Requirements: Class III at the 0.0025 MGD and 0.025 MGD design flow tiers.
8. Reliability Class: Class II

**9. Permit Characterization:**

<input checked="" type="checkbox"/> Private	<input checked="" type="checkbox"/> Effluent Limited	<input type="checkbox"/> Possible Interstate Effect
<input type="checkbox"/> Federal	<input checked="" type="checkbox"/> Water Quality Limited	<input type="checkbox"/> Compliance Schedule Required
<input type="checkbox"/> State	<input type="checkbox"/> Toxics Monitoring Program Required	<input type="checkbox"/> Interim Limits in Permit
<input type="checkbox"/> POTW	<input type="checkbox"/> Pretreatment Program Required	<input type="checkbox"/> Interim Limits in Other Document
<input checked="" type="checkbox"/> TMDL		

**10. Wastewater Sources and Treatment Description:**

The current facility is an extended aeration package plant consisting of a coarse bar screen, aeration basin, clarifier, disinfection via tablet feeder, dechlorination via tablet feeder and post aeration prior to discharge. The plant is in disrepair and has not operated in the last eight (8) years. Major repairs/replacement of equipment would be required before it can be operational. The permittee would need to submit plans and specifications regarding upgrades/repairs to Virginia Department of Health and DEQ Northern Regional Office for review and approval before a Certificate to Construct (CTC) can be issued. A Certificate to Operate (CTO) would be required prior to operating the system.

The proposed permit will have two (2) flow tiers – 0.0025 MGD and 0.0395 MGD.

TABLE 1 – Outfall Description				
Outfall Number	Discharge Sources	Treatment	Design Flow	Outfall Latitude and Longitude
001	Domestic and Commercial Wastewater	See Item 10 above.	0.0025 MGD	38° 29' 36" N 77° 55' 51" W
See <b>Attachment 2</b> for topographic map.				

**11. Sludge Treatment and Disposal Methods:**

Per the permit application package, sludge will be periodically pumped and hauled by a contractor to the Remington Wastewater Treatment Plant (VA0076805) for final treatment and disposal once the plant is operational.

Currently, there is no sludge production at this facility.

**12. Discharges, Intakes, Monitoring Stations and Other Items in Vicinity of Discharge:**

TABLE 2	
Permit Number	Discharges; Ambient Monitoring Stations; Drinking Water Intakes
VA0059145	Culpeper Wood Preservers (discharge to a UT of Jonas Run, downstream of Outfall 001)
VAR051087	Quarles Petroleum – Culpeper Bulk Plant (discharge to a UT of Jonas Run, downstream of Outfall 001)

**13. Material Storage:**

Treatment plant is currently off-line. There are no chemicals stored on-site.

**14. Site Inspection:**

There was no site inspection conducted for this reissuance. The facility has not operated in the last eight (8) years. A copy of the inspection conducted during the last reissuance is included (see **Attachment 3**).

**15. Receiving Stream Water Quality and Water Quality Standards:****a) Ambient Water Quality Data**

There are downstream impairments for bacteria and PCBs in fish tissue. The Fecal coliform TMDL was approved by the EPA on 27 April 2001. While the receiving stream was not included in the TMDL, the facility did receive a WLA for bacteria since it is an upstream source. The TMDL addressing PCBs in fish tissue is due in 2018.

**b) Receiving Stream Water Quality Criteria**

Part IX of 9 VAC 25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream Jonas Run, UT is located within Section 04 of the Rappahannock River Basin and is classified as Class III water.

At all times, Class III waters must achieve a dissolved oxygen (D.O.) of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, a temperature that does not exceed 32°C and maintain a pH of 6.0-9.0 standard units (S.U.).

**Attachment 4** details other water quality criteria applicable to the receiving stream.

**Ammonia:**

Sufficient ambient water quality data for the stream is not available. In addition, since the plant has not discharged in the past eight (8) years, there is no effluent data. Therefore, a default temperature value of 25°C and a pH value of 8.0 S.U. were used to calculate the ammonia water quality standards.

**Bacteria Criteria:**

The Virginia Water Quality Standards (9 VAC 25-260-170 B.) states sewage discharges shall be disinfected to achieve the following criteria:

*E. coli* bacteria per 100 mL of water shall not exceed the following:

	Geometric Mean <sup>1</sup>	Single Sample Maximum
Freshwater <i>E. coli</i> (N/100 mL)	126	235

<sup>1</sup>For two or more samples taken during any calendar month.

**c) Receiving Stream Special Standards**

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9 VAC 25-260-360, 370 and 380) designates the river basins, sections, classes and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, Jonas Run, UT, is located within Section 04 of the Rappahannock River Basin. This section has not been designated with a special standard.

**d) Threatened or Endangered Species**

The following threatened or endangered species were identified within a 2 mile radius of the discharge: Barn Owl and Dickcissel (song bird). The limits proposed in this draft permit are protective of the Virginia Water Quality Standards and therefore, protect the threatened and endangered species found near the discharge.

**16. Antidegradation (9 VAC 25-260-30):**

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream has been classified as Tier 1 based on the fact that the critical flows 7Q10 and 1Q10 have been determined to be zero. Permit limits proposed have been established by determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria which apply to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

**17. Effluent Screening, Wasteload Allocation and Effluent Limitation Development:**

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points are equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLAs) are calculated. In this case since the critical flows 7Q10 and 1Q10 have been determined to be zero, the WLAs are equal to the WQS. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are based on the most limiting WLA, the required sampling frequency, and statistical characteristics of the effluent data.

**a) Effluent Screening**

Effluent data is not available since the plant has not been operational for the last 8 years.

**b) Mixing Zones and Wasteload Allocations (WLAs)**

Wasteload Allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{C_o [Q_e + (f)(Q_s)] - [(C_s)(f)(Q_s)]}{Q_e}$$

Where:

WLA	=	Wasteload allocation
C <sub>o</sub>	=	In-stream water quality criteria
Q <sub>e</sub>	=	Design flow
Q <sub>s</sub>	=	Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; harmonic mean for carcinogen-human health criteria; 30Q10 for ammonia criteria; and 30Q5 for non-carcinogen human health criteria)
f	=	Decimal fraction of critical flow
C <sub>s</sub>	=	Mean background concentration of parameter in the receiving stream.

The water segment receiving the discharge via Outfall 001 is considered to have a 7Q10 and 1Q10 of 0.0 MGD. As such, there is no mixing zone and the WLA is equal to the C<sub>o</sub>.

**c) Effluent Limitations Toxic Pollutants, Outfall 001**

9 VAC 25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9 VAC 25-31-230.D. requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

**1) Ammonia as N/TKN:**

Previous site visits, conducted in 1997 and 2000, found downstream conditions that were indicative of marsh or swamp waters (relatively flat, low flow velocities and impounded areas). These conditions make stream modeling rather difficult. Therefore, it is staff's best professional judgement that imposed effluent limits be self sustaining. A self sustaining discharge meeting these limitations will not normally violate the stream standards even if the stream consists of 100% effluent.

Therefore, the year round TKN limit of 3.0 mg/L will be carried forward. A TKN limit of 3.0 mg/L assumes that the remaining nitrogen is in the form of refractory organic compounds that will not be easily oxidized and that ammonia is removed when the 3.0 mg/L TKN limit is met. The weekly average limit will be 4.5 mg/L based on a multiplier of 1.5 times the monthly average.

## 2) Total Residual Chlorine:

Chlorine is proposed for disinfection and is potentially in the discharge. Staff calculated WLAs for TRC using current critical flows and the mixing allowance. In accordance with current DEQ guidance, staff used a default data point of 0.2 mg/L and the calculated WLAs to derive limits. A monthly average of 0.008 mg/L and a weekly average limit of 0.010 mg/L are proposed for this discharge (see **Attachment 5**).

d) Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

No changes to Dissolved Oxygen (D.O.), carbonaceous Biochemical Oxygen Demand-5 day (cBOD<sub>5</sub>), Total Suspended Solids (TSS), Total Kjeldahl Nitrogen (TKN) and pH limitations are proposed.

cBOD<sub>5</sub>, TSS, D.O. and TKN limitations are based on best professional judgement and Guidance Memo 00-2011. This guidance is applicable to waters such as this portion of Jonas Run, UT, where the water is shallow, flow is intermittent and the waters cannot be modeled.

No changes are proposed for the Oil & Grease limit. It is staff's best professional judgement that this limit remain until the new facility can demonstrate this parameter is not a concern.

It is staff's practice to equate the TSS limits with the cBOD<sub>5</sub> limits since the two pollutants are closely related in terms of treatment of domestic sewage.

pH limitations are set at the water quality criteria.

This permit previously monitored the disinfection of treated wastewater through minimum TRC limits. While these effluent limits and monitoring requirements are retained in this permit, the addition of an *E. coli* effluent limitation is intended to further confirm adequate disinfection. In addition, the limitations are necessary since the facility received a WLA in the Mountain Run TMDL. A monitoring frequency of twice per month is proposed with this reissuance.

Fecal coliform limitations were changed to *E. coli*. to reflect the current Water Quality Standards 9 VAC25-260-170.

e) Effluent Limitations and Monitoring Summary

The effluent limitations are presented in the following table. Limits were established for cBOD<sub>5</sub>, TSS, TKN, pH, D.O., Total Residual Chlorine and *E. coli*.

The limit for Total Suspended Solids is based on Best Professional Judgement.

The mass loading (kg/d) for monthly and weekly averages were calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and then a conversion factor of 3.785.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual.

**18. Antibacksliding:**

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

**19a. Effluent Limitations/Monitoring Requirements:**

Design flow is 0.0025 MGD.

Effective Dates: During the period beginning with the permit's effective date and lasting until the CTO for the 0.0395 MGD facility or the expiration date, whichever occurs first.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
		Monthly Average		Weekly Average		Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL		N/A		N/A	NL	1/D	Estimate
pH	3	N/A		N/A		6.0 S.U.	9.0 S.U.	1/D	Grab
CBOD <sub>5</sub>	2,3	10 mg/L	0.09 kg/day	15 mg/L	0.14 kg/day	N/A	N/A	1/M	Grab
Total Suspended Solids (TSS)	2	10 mg/L	0.09 kg/day	15 mg/L	0.14 kg/day	N/A	N/A	1/M	Grab
DO	3	N/A		N/A		6.5 mg/L	N/A	1/D	Grab
Total Kjeldahl Nitrogen (TKN)	2,3	3.0 mg/L	0.03 kg/day	4.5 mg/L	0.04 kg/day	N/A	N/A	1/M	Grab
Total Residual Chlorine (after contact tank)	4	N/A		N/A		1.0 mg/L	N/A	1/D	Grab
Total Residual Chlorine (after dechlorination)	3	0.008 mg/L		0.010 mg/L		N/A	N/A	1/D	Grab
<i>E. coli</i> (Geometric Mean)	2,5	126 n/100mL		N/A		N/A	N/A	2/M	Grab
Oil & Grease	2	N/A		N/A		N/A	15 mg/L	1/Q*	Grab

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Best Professional Judgement
3. Water Quality Standards
4. DEQ Disinfection Guidance
5. Mountain Run TMDL (**Attachment 6**)

MGD = Million gallons per day.

N/A = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

1/D = Once every day.

1/M = Once every month.

2/M = Twice every month, &gt;7 days apart.

1/Q = Once every calendar quarter.

Estimate = Based on the technical evaluation of sources contributing to the discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

\*Quarterly sampling must be conducted during the following calendar quarters: January 1 – March 31, April 1 – June 30, July 1 – September 30 and October 1 – December 31. Analytical results must be received by DEQ-NRO on January 10, April 10, July 10 and October 10.

**19b. Effluent Limitations/Monitoring Requirements:**

Design flow is 0.0395 MGD.

Effective Dates: During the period beginning with the issuance of the CTO for 0.0395 MGD facility and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
		Monthly Average		Weekly Average		Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL		N/A		N/A	NL	1/D	Estimate
pH	3	N/A		N/A		6.0 S.U.	9.0 S.U.	1/D	Grab
CBOD <sub>5</sub>	2,3	10 mg/L	1.5 kg/day	15 mg/L	2.2 kg/day	N/A	N/A	1/M	Grab
Total Suspended Solids (TSS)	2	10 mg/L	1.5 kg/day	15 mg/L	2.2 kg/day	N/A	N/A	1/M	Grab
DO	3	N/A		N/A		6.5 mg/L	N/A	1/D	Grab
Total Kjeldahl Nitrogen (TKN)	2,3	3.0 mg/L	0.45 kg/day	4.5 mg/L	0.67 kg/day	N/A	N/A	1/M	Grab
Total Residual Chlorine (after contact tank)	4	N/A		N/A		1.0 mg/L	N/A	1/D	Grab
Total Residual Chlorine (after dechlorination)	3	0.008 mg/L		0.010 mg/L		N/A	N/A	1/D	Grab
<i>E. coli</i> (Geometric Mean)	2,5	126 n/100mL		N/A		N/A	N/A	2/M	Grab
Oil & Grease	2	N/A		N/A		N/A	15 mg/L	1/Q*	Grab

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Best Professional Judgement
3. Water Quality Standards
4. DEQ Disinfection Guidance
5. Mountain Run TMDL (**Attachment 6**)

MGD = Million gallons per day.

N/A = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

1/D = Once every day.

1/M = Once every month.

2/M = Twice every month, &gt;7 days apart.

1/Q = Once every calendar quarter.

Estimate = Based on the technical evaluation of sources contributing to the discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

\*Quarterly sampling must be conducted during the following calendar quarters: January 1 – March 31, April 1 – June 30, July 1 – September 30 and October 1 – December 31. Analytical results must be received by DEQ-NRO on January 10, April 10, July 10 and October 10.

**20. Other Permit Requirements:**

Part I.B. of the permit contains additional chlorine monitoring requirements, quantification levels and compliance reporting instructions.

Minimum chlorine residual must be maintained at the exit of the chlorine contact tank to assure adequate disinfection. No more than three (3) of the monthly test results for TRC at the exit of the chlorine contact tank shall be <1.0 mg/L with any TRC <0.6 mg/L considered a system failure. *E. coli* limits are defined in this section as well as monitoring requirements to take effect should an alternate means of disinfection be used.

9 VAC 25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9 VAC 25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

**21. Other Special Conditions:**

- a) 95% Capacity Reopener. The VPDES Permit Regulation at 9 VAC 25-31-200.B.2. requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. The facility is a PVOTW.
- b) Indirect Dischargers. Required by VPDES Permit Regulation, 9 VAC 25-31-280 B.9 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.
- c) O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790; VPDES Permit Regulation, 9 VAC 25-31-190.E. The permittee shall submit for approval an Operations and Maintenance (O&M) Manual 90 days after issuance of the CTO for the 0.0025 MGD facility to the Department of Environmental Quality, Northern Regional Office (DEQ-NRO). Future changes to the facility must be addressed by the submittal of a revised O&M Manual within 90 days of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.
- d) CTC, CTO Requirement. The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.
- e) Financial Assurance. Required by Code of Virginia §62.1-.44.18:3 and the Board's Financial Assurance Regulation, 9 VAC 25-650-1, et seq. which requires owners and operators of PVOTWs with a design flow >0.005 MGD but <0.040 MGD and treating sewage from private residences to submit a closure plan and maintain adequate financial assurance in the event the facility ceases operations. The permitted facility is a PVOTW with a proposed design flow of 0.0395 MGD and will treat sewage generated from private residences. The approved financial assurance mechanism shall be filed with the State Water Control Board within 90 days of the issuance of the CTC for the 0.0395 MGD facility.
- f) Licensed Operator Requirement. The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9 VAC 25-31-200 D, and Rules and Regulations for Waterworks and Wastewater Works Operators (18 VAC 160-20-10 et seq.) requires licensure of operators.  
This facility will require a Class III operator at the 0.0025 MGD and the 0.0395 MGD flow tiers.
- g) Reliability Class. The Sewage Collection and Treatment Regulation at 9 VAC 25-790 requires sewerage works achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. The facility is required to meet reliability Class II.
- h) Sludge Reopener. The VPDES Permit Regulation at 9 VAC 25-31-200.C.4. requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility includes a sewage treatment works.
- i) Sludge Use and Disposal. The VPDES Permit Regulation at 9 VAC 25-31-100.P., 220.B.2., and 420-720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. Technical requirements may be derived from the Virginia Department of Health's Biosolids Use Regulations, 12 VAC 5-585-10 et seq. The facility includes a treatment works treating domestic sewage.
- j) Treatment Works Closure Plan. The State Water Control Law §62.1-44.15:1.1, makes it illegal for an owner to cease operation and fail to implement a closure plan when failure to implement the plan would result in harm to human health or the environment. This condition is used to notify the owner of the need for a closure plan where a facility is being replaced or is expected to close.



22. Permit Section Part II. Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

23. **Changes to the Permit from the Previously Issued Permit:**

a) Special Conditions:

- The Water Quality Criteria Monitoring condition was removed with this reissuance.
- The Water Quality Criteria Reopener condition was removed with this reissuance.
- The Treatment Works Closure Plan was added with this reissuance.

b) Monitoring and Effluent Limitations:

- Fecal coliform monitoring was changed to *E. coli* in keeping with the current Water Quality Standards.
- The bacteriological monitoring frequency was increased from once per month to twice per month.
- The current permit contains flow tiers of 0.0025 MGD, 0.0125 MGD, 0.025 MGD and 0.099 MGD. The permittee requested flow tiers with this reissuance of 0.0025 MGD and 0.0395 MGD.

24. **Variances/Alternate Limits or Conditions:** Not Applicable.

25. **Public Notice Information:**

First Public Notice Date: May 6, 2008

Second Public Notice Date: May 13, 2008

Public Notice Information is required by 9 VAC 25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: Northern DEQ Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3853, [sdmackert@deq.virginia.gov](mailto:sdmackert@deq.virginia.gov). See **Attachment 7** for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

26. **303 (d) Listed Stream Segments and Total Max. Daily Loads (TMDL):**

The TMDL for Mountain Run (Fecal coliform bacteria) was approved by the EPA on April 27, 2001 which included portions downstream of the discharge. Even though the receiving stream was not mentioned in the TMDL, the facility did receive a WLA of  $6.90 \times 10^9$  cfu/year for Fecal coliform bacteria at the 0.0025 MGD permitted flow. The limit of 200 cfu/100mL in the previous permit was in compliance with the approved TMDL. Since *E. coli* bacteria is a subspecies of the Fecal coliform group, it is staff's best professional judgement that the proposed limit is protective of the Water Quality Standards and the TMDL for Mountain Run.

The TMDL for PCBs is due in 2018.

TMDL Reopener: This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL that may be developed and approved for the receiving stream.

27. **Additional Comments:**

Previous Board Action(s): Not Applicable.

Staff Comments: The reissuance of this permit was delayed due to the owner's indecision regarding the requirements of the nutrient General Permit if the previous flow tiers were kept in place.

Public Comment: No comments were received during the public notice.

EPA Checklist: The checklist can be found in **Attachment 8**.

## Fact Sheet Attachments – Table of Contents

### Ferguson Sewage Treatment Plant VA0062529 2007 Reissuance

Attachment 1	Flow Frequency Determination
Attachment 2	Topographic Map
Attachment 3	May 1, 2002 Site Inspection Report
Attachment 4	Waste Load Allocation Analysis
Attachment 5	Chlorine Limit Calculations
Attachment 6	Excerpt of Mountain Run TMDL
Attachment 7	Public Notice
Attachment 8	EPA Checklist

# MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION  
Water Quality Assessments and Planning  
629 E. Main Street P.O. Box 10009 Richmond, Virginia 23240

**SUBJECT:** Flow Frequency Determination  
Ferguson STP - #VA0062529

**TO:** Jeff Talbott, NRO

**FROM:** Paul E. Herman, P.E., WQAP

**DATE:** March 18, 2002

**COPIES:** File

This memo supersedes my December 4, 1996, memo to James Olson concerning the subject VPDES permit.

The Ferguson STP (formerly B-P Associates STP) discharges to an unnamed tributary of the Jonas Run near Brandy Station, VA. Stream flow frequencies are required at this site by the permit writer for the purpose of calculating effluent limitations for the VPDES permit.

At the discharge point, the receiving stream is shown as intermittent on the USGS Culpeper East Quadrangle topographic map. The flow frequencies for intermittent streams are 0.0 cfs for the 1Q10, 7Q10, 30Q5, high flow 1Q10, high flow 7Q10, and harmonic mean. Flow frequencies have been determined for the perennial reach of the unnamed tributary.

The USGS conducted several flow measurements on the Jonas Run from 1979 to 1980. The measurements were made at the Route 684 bridge downstream of the discharge point. The measurements made by the USGS correlated very well with the same day daily mean values from the continuous record gage on the Cedar Run near Catlett, VA #01656000. The measurements and daily mean values were plotted on a logarithmic graph and a best fit line was drawn through the data points. The required flow frequencies from the reference gage were plugged into the equation for the regression line and the associated flow frequencies at the measurement site were calculated. The flow frequencies at the perennial point were determined by using the values at the measurement site and adjusting them by proportional drainage areas. The data for the reference gage, the measurement site and the perennial point are presented below:

## **Cedar Run near Catlett, VA (#01656000):**

Drainage Area = 93.4 mi<sup>2</sup>  
1Q10 = 0.0 cfs                      High Flow 1Q10 = 4.89 cfs  
7Q10 = 0.0 cfs                      High Flow 7Q10 = 6.59 cfs  
30Q5 = 0.59 cfs                      HM = 0.0 cfs  
Annual Average = 90.6 cfs

## **Jonas Run near Brandy Station, VA (#01665100):**

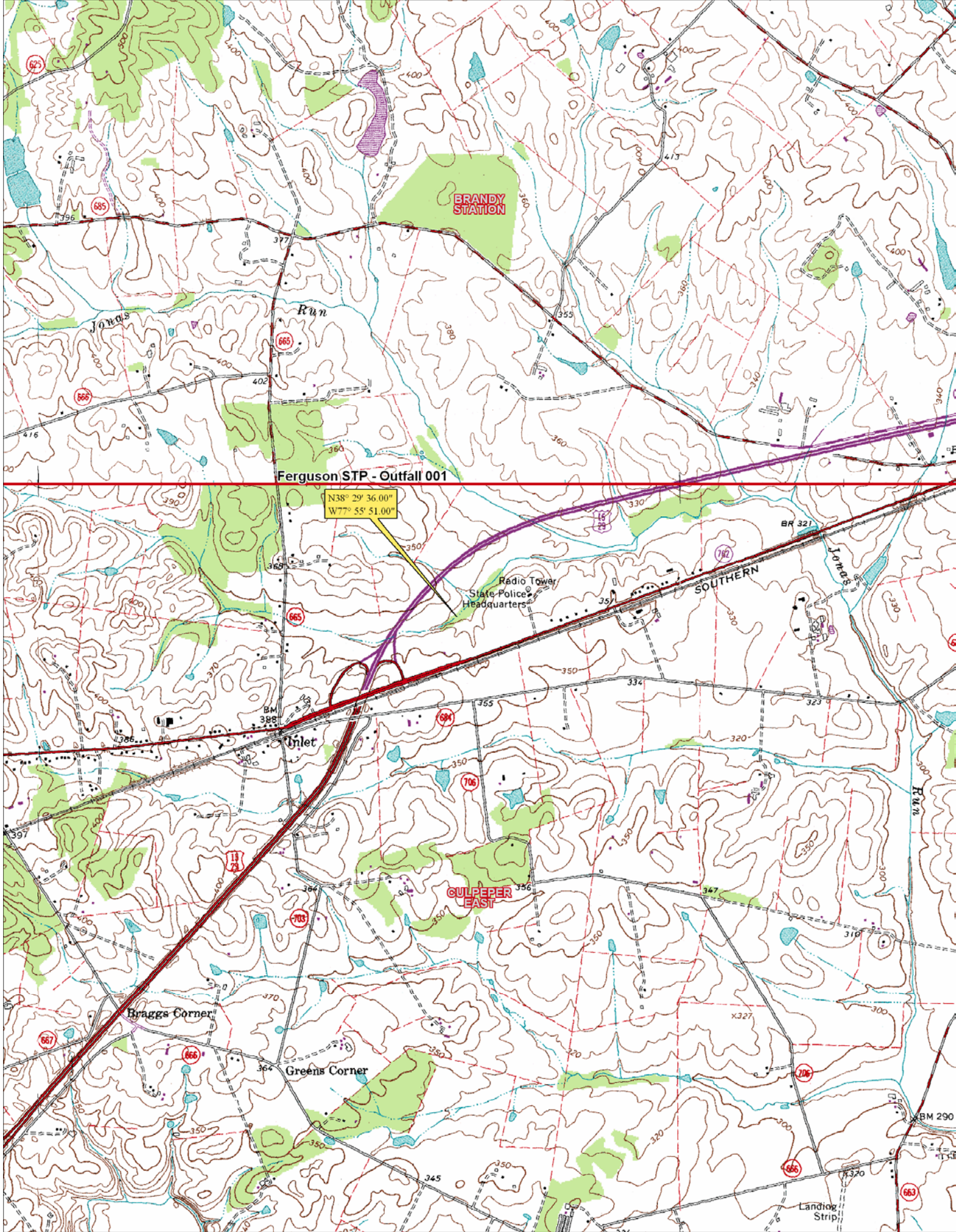
Drainage Area = 11.36 mi<sup>2</sup>  
1Q10 = 0.0 cfs                      High Flow 1Q10 = 0.77 cfs  
7Q10 = 0.0 cfs                      High Flow 7Q10 = 0.996 cfs  
30Q5 = 0.125 cfs                      HM = 0.0 cfs  
Annual Average = 9.46 cfs

**UT to Jonas Run at perennial point:**

	Drainage Area = 2.0 mi <sup>2</sup>	
1Q10 = 0.0 cfs		High Flow 1Q10 = 0.136 cfs (0.088 mgd)
7Q10 = 0.0 cfs		High Flow 7Q10 = 0.175 cfs (0.113 mgd)
30Q5 = 0.022 cfs (0.014 mgd)		HM = 0.0 cfs
	Annual Average = 1.67 cfs (1.08 mgd)	

The high flow months are December through April. This analysis assumes there are no significant discharges, withdrawals or springs influencing the flow in the unnamed tributary to Jonas Run upstream of the perennial point.

If there are any questions concerning this analysis, please let me know.





**May 1, 2002**  
**MEMORANDUM**

TO: File

FROM: Jeff Talbott, DEQ – NVRO (Water Permits)

SUBJECT: Site Inspection for Ferguson Sewage Treatment Plant  
(VPDES No. VA0062529).

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This memo documents the observations made during the site visit at Ferguson Sewage Treatment Plant (STP). The visit was conducted on May 1, 2002 (10:30 a.m.) with James and Martha Ferguson – Owner ((540)825-0600) and Jim Olson (permit writer DEQ).

**The following observations were made during the inspection:**

- **Facility**  
At the time of this inspection, facility was not operating (see picture 1). The facility was in poor condition with a large amount of rust and disrepair. The unit was also filled with standing water. This facility was closed about three years ago and a drain field was put into place. It appears that no maintenance had been performed on the facility in the three years of being off line.
- **Outfall 001**  
The outfall from the facility discharges to a ditch (see picture 2) which then enters an unnamed tributary to Jonas Run (see picture 3).
- **Stream Characteristics**  
During the 1997 stream inspection, at the confluence of the outfall drainage ditch and the unnamed tributary to Jonas Run, a marshy area with a large pool was observed. It was believed that beavers created this marshy area. Approximately 500 yards downstream of the confluence, just beyond the State Police Office, the stream had a defined channel and flow was observed. At the Route 672 bridge, a defined channel was observed which was approximately twelve feet wide and two feet deep.

During this inspection, the outfall drainage ditch discharge to the unnamed tributary had a defined channel. Stream flows were higher than normal because of heavy rains the weekend before this inspection. No marshy areas were observed during this inspection. Behind the State Police Office, the stream was again observed to have a defined channel. Downstream at the Route 762 bridge, numerous beaver dams were observed and a large pond was found. See pictures 4, 5, and 6.

The unnamed tributary is approximately 0.7 miles from the confluence with Jonas Run. From this point to the Route 762 bridge is approximately another 0.75 miles. Thus, the discharge is approximately 1.5 miles up stream of the beaver dams. This was determined by the use of the DeLorme Topo map program.

**Other Comments:**

Also discussed during the inspection were the facility's upgrades and/or repair. Mr. Ferguson stated that he was going to put this facility back into operation. DEQ stated that he would have to make the facility operational and it would have to be certified by VDH and DEQ

# FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: **Ferguson STP**

Permit No.: **VA0062529**

Receiving Stream: **Jonas Run, UT**

Version: OWP Guidance Memo 00-2011 (8/24/00)

## Stream Information

Mean Hardness (as CaCO3) = **25** mg/L  
 90% Temperature (Annual) = **25** deg C  
 90% Temperature (Wet season) = **25** deg C  
 90% Maximum pH = **8** SU  
 10% Maximum pH = **8** SU  
 Tier Designation (1 or 2) = **1**  
 Public Water Supply (PWS) Y/N? = **n**  
 Trout Present Y/N? = **n**  
 Early Life Stages Present Y/N? = **y**

## Stream Flows

1Q10 (Annual) = **0** MGD  
 7Q10 (Annual) = **0** MGD  
 30Q10 (Annual) = **0** MGD  
 1Q10 (Wet season) = **0** MGD  
 30Q10 (Wet season) = **0** MGD  
 30Q5 = **0** MGD  
 Harmonic Mean = **0** MGD  
 Annual Average = **0** MGD

## Mixing Information

Annual - 1Q10 Mix = **0** %  
 - 7Q10 Mix = **0** %  
 - 30Q10 Mix = **0** %  
 Wet Season - 1Q10 Mix = **0** %  
 - 30Q10 Mix = **0** %

## Effluent Information

Mean Hardness (as CaCO3) = **25** mg/L  
 90% Temp (Annual) = **25** deg C  
 90% Temp (Wet season) = **25** deg C  
 90% Maximum pH = **8** SU  
 10% Maximum pH = **8** SU  
 Discharge Flow = **0.0025** MGD

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenaphthene	0	--	--	na	2.7E+03	--	--	na	2.7E+03	--	--	--	--	--	--	--	--	--	--	na	2.7E+03
Acrolein	0	--	--	na	7.8E+02	--	--	na	7.8E+02	--	--	--	--	--	--	--	--	--	--	na	7.8E+02
Acrylonitrile <sup>C</sup>	0	--	--	na	6.6E+00	--	--	na	6.6E+00	--	--	--	--	--	--	--	--	--	--	na	6.6E+00
Aldrin <sup>C</sup>	0	3.0E+00	--	na	1.4E-03	3.0E+00	--	na	1.4E-03	--	--	--	--	--	--	--	--	3.0E+00	--	na	1.4E-03
Ammonia-N (mg/l) (Yearly)	0	8.41E+00	1.24E+00	na	--	8.4E+00	1.2E+00	na	--	--	--	--	--	--	--	--	--	8.4E+00	1.2E+00	na	--
Ammonia-N (mg/l) (High Flow)	0	8.41E+00	2.43E+00	na	--	8.4E+00	2.4E+00	na	--	--	--	--	--	--	--	--	--	8.4E+00	2.4E+00	na	--
Anthracene	0	--	--	na	1.1E+05	--	--	na	1.1E+05	--	--	--	--	--	--	--	--	--	--	na	1.1E+05
Antimony	0	--	--	na	4.3E+03	--	--	na	4.3E+03	--	--	--	--	--	--	--	--	--	--	na	4.3E+03
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	--	--	--	--	--	3.4E+02	1.5E+02	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene <sup>C</sup>	0	--	--	na	7.1E+02	--	--	na	7.1E+02	--	--	--	--	--	--	--	--	--	--	na	7.1E+02
Benzidine <sup>C</sup>	0	--	--	na	5.4E-03	--	--	na	5.4E-03	--	--	--	--	--	--	--	--	--	--	na	5.4E-03
Benzo (a) anthracene <sup>C</sup>	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Benzo (b) fluoranthene <sup>C</sup>	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Benzo (k) fluoranthene <sup>C</sup>	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Benzo (a) pyrene <sup>C</sup>	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Bis(2-Chloroethyl) Ether	0	--	--	na	1.4E+01	--	--	na	1.4E+01	--	--	--	--	--	--	--	--	--	--	na	1.4E+01
Bis(2-Chloroisopropyl) Ether	0	--	--	na	1.7E+05	--	--	na	1.7E+05	--	--	--	--	--	--	--	--	--	--	na	1.7E+05
Bromoform <sup>C</sup>	0	--	--	na	3.6E+03	--	--	na	3.6E+03	--	--	--	--	--	--	--	--	--	--	na	3.6E+03
Butylbenzylphthalate	0	--	--	na	5.2E+03	--	--	na	5.2E+03	--	--	--	--	--	--	--	--	--	--	na	5.2E+03
Cadmium	0	8.2E-01	3.8E-01	na	--	8.2E-01	3.8E-01	na	--	--	--	--	--	--	--	--	--	8.2E-01	3.8E-01	na	--
Carbon Tetrachloride <sup>C</sup>	0	--	--	na	4.4E+01	--	--	na	4.4E+01	--	--	--	--	--	--	--	--	--	--	na	4.4E+01
Chlordane <sup>C</sup>	0	2.4E+00	4.3E-03	na	2.2E-02	2.4E+00	4.3E-03	na	2.2E-02	--	--	--	--	--	--	--	--	2.4E+00	4.3E-03	na	2.2E-02
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	--	--	--	--	--	8.6E+05	2.3E+05	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.9E+01	1.1E+01	na	--
Chlorobenzene	0	--	--	na	2.1E+04	--	--	na	2.1E+04	--	--	--	--	--	--	--	--	--	--	na	2.1E+04

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane <sup>C</sup>	0	--	--	na	3.4E+02	--	--	na	3.4E+02	--	--	--	--	--	--	--	--	--	--	na	3.4E+02
Chloroform <sup>C</sup>	0	--	--	na	2.9E+04	--	--	na	2.9E+04	--	--	--	--	--	--	--	--	--	--	na	2.9E+04
2-Chloronaphthalene	0	--	--	na	4.3E+03	--	--	na	4.3E+03	--	--	--	--	--	--	--	--	--	--	na	4.3E+03
2-Chlorophenol	0	--	--	na	4.0E+02	--	--	na	4.0E+02	--	--	--	--	--	--	--	--	--	--	na	4.0E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	--	--	--	--	--	--	--	--	8.3E-02	4.1E-02	na	--
Chromium III	0	1.8E+02	2.4E+01	na	--	1.8E+02	2.4E+01	na	--	--	--	--	--	--	--	--	--	1.8E+02	2.4E+01	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.6E+01	1.1E+01	na	--
Chromium, Total	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene <sup>C</sup>	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Copper	0	3.6E+00	2.7E+00	na	--	3.6E+00	2.7E+00	na	--	--	--	--	--	--	--	--	--	3.6E+00	2.7E+00	na	--
Cyanide	0	2.2E+01	5.2E+00	na	2.2E+05	2.2E+01	5.2E+00	na	2.2E+05	--	--	--	--	--	--	--	--	2.2E+01	5.2E+00	na	2.2E+05
DDD <sup>C</sup>	0	--	--	na	8.4E-03	--	--	na	8.4E-03	--	--	--	--	--	--	--	--	--	--	na	8.4E-03
DDE <sup>C</sup>	0	--	--	na	5.9E-03	--	--	na	5.9E-03	--	--	--	--	--	--	--	--	--	--	na	5.9E-03
DDT <sup>C</sup>	0	1.1E+00	1.0E-03	na	5.9E-03	1.1E+00	1.0E-03	na	5.9E-03	--	--	--	--	--	--	--	--	1.1E+00	1.0E-03	na	5.9E-03
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Dibenz(a,h)anthracene <sup>C</sup>	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Dibutyl phthalate	0	--	--	na	1.2E+04	--	--	na	1.2E+04	--	--	--	--	--	--	--	--	--	--	na	1.2E+04
Dichloromethane (Methylene Chloride) <sup>C</sup>	0	--	--	na	1.6E+04	--	--	na	1.6E+04	--	--	--	--	--	--	--	--	--	--	na	1.6E+04
1,2-Dichlorobenzene	0	--	--	na	1.7E+04	--	--	na	1.7E+04	--	--	--	--	--	--	--	--	--	--	na	1.7E+04
1,3-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	2.6E+03	--	--	--	--	--	--	--	--	--	--	na	2.6E+03
1,4-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	2.6E+03	--	--	--	--	--	--	--	--	--	--	na	2.6E+03
3,3-Dichlorobenzidine <sup>C</sup>	0	--	--	na	7.7E-01	--	--	na	7.7E-01	--	--	--	--	--	--	--	--	--	--	na	7.7E-01
Dichlorobromomethane <sup>C</sup>	0	--	--	na	4.6E+02	--	--	na	4.6E+02	--	--	--	--	--	--	--	--	--	--	na	4.6E+02
1,2-Dichloroethane <sup>C</sup>	0	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	--	--	--	--	--	--	--	--	na	9.9E+02
1,1-Dichloroethylene	0	--	--	na	1.7E+04	--	--	na	1.7E+04	--	--	--	--	--	--	--	--	--	--	na	1.7E+04
1,2-trans-dichloroethylene	0	--	--	na	1.4E+05	--	--	na	1.4E+05	--	--	--	--	--	--	--	--	--	--	na	1.4E+05
2,4-Dichlorophenol	0	--	--	na	7.9E+02	--	--	na	7.9E+02	--	--	--	--	--	--	--	--	--	--	na	7.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane <sup>C</sup>	0	--	--	na	3.9E+02	--	--	na	3.9E+02	--	--	--	--	--	--	--	--	--	--	na	3.9E+02
1,3-Dichloropropene	0	--	--	na	1.7E+03	--	--	na	1.7E+03	--	--	--	--	--	--	--	--	--	--	na	1.7E+03
Dieldrin <sup>C</sup>	0	2.4E-01	5.6E-02	na	1.4E-03	2.4E-01	5.6E-02	na	1.4E-03	--	--	--	--	--	--	--	--	2.4E-01	5.6E-02	na	1.4E-03
Diethyl Phthalate	0	--	--	na	1.2E+05	--	--	na	1.2E+05	--	--	--	--	--	--	--	--	--	--	na	1.2E+05
Di-2-Ethylhexyl Phthalate <sup>C</sup>	0	--	--	na	5.9E+01	--	--	na	5.9E+01	--	--	--	--	--	--	--	--	--	--	na	5.9E+01
2,4-Dimethylphenol	0	--	--	na	2.3E+03	--	--	na	2.3E+03	--	--	--	--	--	--	--	--	--	--	na	2.3E+03
Dimethyl Phthalate	0	--	--	na	2.9E+06	--	--	na	2.9E+06	--	--	--	--	--	--	--	--	--	--	na	2.9E+06
Di-n-Butyl Phthalate	0	--	--	na	1.2E+04	--	--	na	1.2E+04	--	--	--	--	--	--	--	--	--	--	na	1.2E+04
2,4 Dinitrophenol	0	--	--	na	1.4E+04	--	--	na	1.4E+04	--	--	--	--	--	--	--	--	--	--	na	1.4E+04
2-Methyl-4,6-Dinitrophenol	0	--	--	na	7.65E+02	--	--	na	7.7E+02	--	--	--	--	--	--	--	--	--	--	na	7.7E+02
2,4-Dinitrotoluene <sup>C</sup>	0	--	--	na	9.1E+01	--	--	na	9.1E+01	--	--	--	--	--	--	--	--	--	--	na	9.1E+01
Dioxin (2,3,7,8- tetrachlorodibenzo-p- dioxin) (ppq)	0	--	--	na	1.2E-06	--	--	na	na	--	--	--	--	--	--	--	--	--	--	na	na
1,2-Diphenylhydrazine <sup>C</sup>	0	--	--	na	5.4E+00	--	--	na	5.4E+00	--	--	--	--	--	--	--	--	--	--	na	5.4E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	2.4E+02	2.2E-01	5.6E-02	na	2.4E+02	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	2.4E+02
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	2.4E+02	2.2E-01	5.6E-02	na	2.4E+02	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	2.4E+02
Endosulfan Sulfate	0	--	--	na	2.4E+02	--	--	na	2.4E+02	--	--	--	--	--	--	--	--	--	--	na	2.4E+02
Endrin	0	8.6E-02	3.6E-02	na	8.1E-01	8.6E-02	3.6E-02	na	8.1E-01	--	--	--	--	--	--	--	--	8.6E-02	3.6E-02	na	8.1E-01
Endrin Aldehyde	0	--	--	na	8.1E-01	--	--	na	8.1E-01	--	--	--	--	--	--	--	--	--	--	na	8.1E-01



Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.9E+04	--	--	na	2.9E+04	--	--	--	--	--	--	--	--	--	--	na	2.9E+04
Fluoranthene	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	--	--	na	3.7E+02
Fluorene	0	--	--	na	1.4E+04	--	--	na	1.4E+04	--	--	--	--	--	--	--	--	--	--	na	1.4E+04
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	--	--	--	--	--	1.0E-02	na	--
Heptachlor <sup>C</sup>	0	5.2E-01	3.8E-03	na	2.1E-03	5.2E-01	3.8E-03	na	2.1E-03	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	2.1E-03
Heptachlor Epoxide <sup>C</sup>	0	5.2E-01	3.8E-03	na	1.1E-03	5.2E-01	3.8E-03	na	1.1E-03	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	1.1E-03
Hexachlorobenzene <sup>C</sup>	0	--	--	na	7.7E-03	--	--	na	7.7E-03	--	--	--	--	--	--	--	--	--	--	na	7.7E-03
Hexachlorobutadiene <sup>C</sup>	0	--	--	na	5.0E+02	--	--	na	5.0E+02	--	--	--	--	--	--	--	--	--	--	na	5.0E+02
Hexachlorocyclohexane																					
Alpha-BHC <sup>C</sup>	0	--	--	na	1.3E-01	--	--	na	1.3E-01	--	--	--	--	--	--	--	--	--	--	na	1.3E-01
Hexachlorocyclohexane																					
Beta-BHC <sup>C</sup>	0	--	--	na	4.6E-01	--	--	na	4.6E-01	--	--	--	--	--	--	--	--	--	--	na	4.6E-01
Hexachlorocyclohexane																					
Gamma-BHC <sup>C</sup> (Lindane)	0	9.5E-01	na	na	6.3E-01	9.5E-01	--	na	6.3E-01	--	--	--	--	--	--	--	--	9.5E-01	--	na	6.3E-01
Hexachlorocyclopentadiene	0	--	--	na	1.7E+04	--	--	na	1.7E+04	--	--	--	--	--	--	--	--	--	--	na	1.7E+04
Hexachloroethane <sup>C</sup>	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	na	8.9E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	--	--	--	--	2.0E+00	na	--
Indeno (1,2,3-cd) pyrene <sup>C</sup>	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone <sup>C</sup>	0	--	--	na	2.6E+04	--	--	na	2.6E+04	--	--	--	--	--	--	--	--	--	--	na	2.6E+04
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	2.0E+01	2.3E+00	na	--	2.0E+01	2.3E+00	na	--	--	--	--	--	--	--	--	--	2.0E+01	2.3E+00	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	na	5.1E-02	1.4E+00	7.7E-01	na	5.1E-02	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	na	5.1E-02
Methyl Bromide	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	--	--	--	--	--	--	--	--	na	4.0E+03
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	3.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Monochlorobenzene	0	--	--	na	2.1E+04	--	--	na	2.1E+04	--	--	--	--	--	--	--	--	--	--	na	2.1E+04
Nickel	0	5.6E+01	6.3E+00	na	4.6E+03	5.6E+01	6.3E+00	na	4.6E+03	--	--	--	--	--	--	--	--	5.6E+01	6.3E+00	na	4.6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
N-Nitrosodimethylamine <sup>C</sup>	0	--	--	na	8.1E+01	--	--	na	8.1E+01	--	--	--	--	--	--	--	--	--	--	na	8.1E+01
N-Nitrosodiphenylamine <sup>C</sup>	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	--	--	--	--	--	--	--	--	na	1.6E+02
N-Nitrosodi-n-propylamine <sup>C</sup>	0	--	--	na	1.4E+01	--	--	na	1.4E+01	--	--	--	--	--	--	--	--	--	--	na	1.4E+01
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	na	--
PCB-1016	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1221	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1232	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1242	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1248	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1254	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1260	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB Total <sup>C</sup>	0	--	--	na	1.7E-03	--	--	na	1.7E-03	--	--	--	--	--	--	--	--	--	--	na	1.7E-03

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Pentachlorophenol <sup>C</sup>	0	7.7E-03	5.9E-03	na	8.2E+01	7.7E-03	5.9E-03	na	8.2E+01	--	--	--	--	--	--	--	--	7.7E-03	5.9E-03	na	8.2E+01
Phenol	0	--	--	na	4.6E+06	--	--	na	4.6E+06	--	--	--	--	--	--	--	--	--	--	na	4.6E+06
Pyrene	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
Radionuclides (pCi/l except Beta/Photon)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Gross Alpha Activity Beta and Photon Activity (mrem/yr)	0	--	--	na	1.5E+01	--	--	na	1.5E+01	--	--	--	--	--	--	--	--	--	--	na	1.5E+01
Strontium-90	0	--	--	na	4.0E+00	--	--	na	4.0E+00	--	--	--	--	--	--	--	--	--	--	na	4.0E+00
Tritium	0	--	--	na	8.0E+00	--	--	na	8.0E+00	--	--	--	--	--	--	--	--	--	--	na	8.0E+00
Selenium	0	--	--	na	2.0E+04	--	--	na	2.0E+04	--	--	--	--	--	--	--	--	--	--	na	2.0E+04
Silver	0	2.0E+01	5.0E+00	na	1.1E+04	2.0E+01	5.0E+00	na	1.1E+04	--	--	--	--	--	--	--	--	2.0E+01	5.0E+00	na	1.1E+04
Sulfate	0	3.2E-01	--	na	--	3.2E-01	--	na	--	--	--	--	--	--	--	--	--	3.2E-01	--	na	--
1,1,2,2-Tetrachloroethane <sup>C</sup>	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Tetrachloroethylene <sup>C</sup>	0	--	--	na	1.1E+02	--	--	na	1.1E+02	--	--	--	--	--	--	--	--	--	--	na	1.1E+02
Thallium	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	na	8.9E+01
Toluene	0	--	--	na	6.3E+00	--	--	na	6.3E+00	--	--	--	--	--	--	--	--	--	--	na	6.3E+00
Total dissolved solids	0	--	--	na	2.0E+05	--	--	na	2.0E+05	--	--	--	--	--	--	--	--	--	--	na	2.0E+05
Toxaphene <sup>C</sup>	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Tributyltin	0	7.3E-01	2.0E-04	na	7.5E-03	7.3E-01	2.0E-04	na	7.5E-03	--	--	--	--	--	--	--	--	7.3E-01	2.0E-04	na	7.5E-03
1,2,4-Trichlorobenzene	0	4.6E-01	6.3E-02	na	--	4.6E-01	6.3E-02	na	--	--	--	--	--	--	--	--	--	4.6E-01	6.3E-02	na	--
1,1,2-Trichloroethane <sup>C</sup>	0	--	--	na	9.4E+02	--	--	na	9.4E+02	--	--	--	--	--	--	--	--	--	--	na	9.4E+02
Trichloroethylene <sup>C</sup>	0	--	--	na	4.2E+02	--	--	na	4.2E+02	--	--	--	--	--	--	--	--	--	--	na	4.2E+02
2,4,6-Trichlorophenol <sup>C</sup>	0	--	--	na	8.1E+02	--	--	na	8.1E+02	--	--	--	--	--	--	--	--	--	--	na	8.1E+02
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	6.5E+01	--	--	na	6.5E+01	--	--	--	--	--	--	--	--	--	--	na	6.5E+01
Vinyl Chloride <sup>C</sup>	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Zinc	0	--	--	na	6.1E+01	--	--	na	6.1E+01	--	--	--	--	--	--	--	--	--	--	na	6.1E+01
	0	3.6E+01	3.6E+01	na	6.9E+04	3.6E+01	3.6E+01	na	6.9E+04	--	--	--	--	--	--	--	--	3.6E+01	3.6E+01	na	6.9E+04

Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.  
Antidegradation WLAs are based upon a complete mix.
- Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic  
= (0.1(WQC - background conc.) + background conc.) for human health
- WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens, Harmonic Mean for Carcinogens, and Annual Average for Dioxin. Mixing ratios may be substituted for stream flows where appropriate.

Metal	Target Value (SSTV)
Antimony	4.3E+03
Arsenic	9.0E+01
Barium	na
Cadmium	2.3E-01
Chromium III	1.4E+01
Chromium VI	6.4E+00
Copper	1.5E+00
Iron	na
Lead	1.4E+00
Manganese	na
Mercury	5.1E-02
Nickel	3.8E+00
Selenium	3.0E+00
Silver	1.3E-01
Zinc	1.4E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

Facility = Ferguson Sewage Treatment Plant  
Chemical = Ammonia  
Chronic averaging period = 30  
WLAa = 8.4  
WLAc = 1.2  
Q.L. = .2  
# samples/mo. = 1  
# samples/wk. = 1

Summary of Statistics:

# observations = 1  
Expected Value = 10  
Variance = 36  
C.V. = 0.6  
97th percentile daily values = 24.3341  
97th percentile 4 day average = 16.6379  
97th percentile 30 day average = 12.0605  
# < Q.L. = 0  
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity  
Maximum Daily Limit = 2.42120411209957  
Average Weekly limit = 2.42120411209957  
Average Monthly Limit = 2.42120411209957

The data are:

Facility = Ferguson Sewage Treatment Plant

Chemical = Chlorine

Chronic averaging period = 4

WLAa = 0.019

WLAc = 0.011

Q.L. = .1

# samples/mo. = 28

# samples/wk. = 7

#### Summary of Statistics:

# observations = 1

Expected Value = .2

Variance = .0144

C.V. = 0.6

97th percentile daily values = .486683

97th percentile 4 day average = .332758

97th percentile 30 day average = .241210

# < Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity

Maximum Daily Limit = 1.60883226245855E-02

Average Weekly limit = 9.8252545713861E-03

Average Monthly Limit = 8.02152773888032E-03

The data are:

0.2

## **3.0 SOURCE ASSESSMENT OF FECAL COLIFORM**

### **3.1 Point Sources**

Four municipal and industrial facilities are located in the watershed with permitted fecal coliform discharges. The permitted limits of daily flow and fecal coliform concentration for each facility are shown in Table 3-1. The Culpeper wastewater treatment plant (WWTP) is the only one of these four that is currently discharging into Mountain Run. Two of the other facilities have not yet been built, and one is currently off-line.

**Table 3-1. VPDES Permitted Dischargers in the Mountain Run Watershed**

<b>VPDES</b>	<b>Facility Name</b>	<b>Stream</b>	<b>Permitted Daily Flow<sup>1</sup></b>	<b>Permitted Fecal Coliform Concentration<sup>2</sup></b>	<b>Status</b>
VA0061590	Town of Culpeper WWTP	Mountain Run	3.0 MGD	200 cfu/100 mL	In operation
VA0062529	Ferguson WWTP	Jonas Run	0.0025 MGD	200 cfu/100 mL	Currently off-line
VA0087149	Mount Dumplin WWTP	Flat Run	0.3 MGD	200 cfu/100 mL	Facility not built
VA0090212	Mountain Run WWTP	Mountain Run	0.3 MGD	200 cfu/100 mL	Facility not yet built

<sup>1</sup> Monthly-averaged.

<sup>2</sup> 30-day geometric mean.

All of the wastewater treatment plants (WWTP) permitted in Mountain Run are required to use advanced secondary treatment, which removes fecal coliform from the wastewater discharge. Fecal coliform is only contributed from WWTP with secondary treatment in those cases where the treatment plant handles combined storm and sewer flows, and their treatment capacity is exceeded. Only one WWTP in the Mountain Run watershed is currently in operation, operated by the Town of Culpeper. The Town does not combine their storm flow with sewer flow. Secondary treatment at this facility has never been bypassed since 1983, according to the plant manager, when the plant increased its capacity to 3.0 MGD and tertiary treatment was installed. In Mountain Run, the WWTP does not appear to be a contributing source to downstream fecal bacteria levels.

**Table 4-13. Permitted Dischargers of Fecal Coliform in Mountain Run**

Discharger	Permitted Flow		Permitted [FC] (cfu/100 mL)	WLA (cfu/day)
	Volume (MGD)	Rate (cfs)		
Mt. Dumplin STP	0.3	0.46416	200	$2.27118 \times 10^9$
Ferguson STP	0.0025	0.00387	200	$1.89265 \times 10^7$
Mountain Run STP	0.3	0.46416	200	$2.27118 \times 10^9$
Town of Culpeper WWTP	3.0	4.64160	200	$2.27118 \times 10^{10}$
<b>ΣWLA</b>				<b><math>2.72731 \times 10^{10}</math></b>

## 4.7 Model Calibration Process

Model calibration is the process of adjusting select parameter values in order to make simulated output comparable to observed measurements for key components in the model. The three types of parameters calibrated for the Mountain Run watershed model related to daily flows (hydrology), fecal coliform concentrations (water quality) from urban areas, and fecal coliform concentrations (water quality) from all sources.

### 4.7.1 Hydrologic Parameter Calibration

The 1986-1989 period of rainfall was chosen for the calibration model runs, since it was representative of a wide variety of rainfall conditions, including contiguous years of wet, dry and normal annual rainfall, and was a relatively complete period of record from the Culpeper station. The watershed upstream from the USGS flow gaging station was used to calibrate the hydrologic parameters in the model. A number of sub-watersheds were defined within this calibration watershed, and channel cross-sections were estimated at the mouth of each sub-watershed from site visits. The calibration watershed, shown in Figure 4-3 with its defined reaches and sub-watersheds, includes Mountain Run Lake, which was modeled as a reservoir. Stage-discharge curves for outflow were obtained from USDA-NRCS in Richmond and used to simulate storage and outflow from the reservoir reach. Hydrologic parameter values calibrated for this site were then applied to the downstream model of Mountain Run watershed.

## **5.0 TMDL ALLOCATION**

### **5.1 Overview**

The objective of a TMDL plan is to allocate allowable loads among different pollutant sources so that the appropriate control actions can be taken to achieve water quality standards (USEPA, 1991). The objective of the TMDL plan for Mountain Run was to determine what reductions in fecal coliform loadings from point and nonpoint sources are required to meet state water quality standards. The state water quality standard for fecal coliform used in the development of the TMDL was 200 cfu/100mL (30-day geometric mean). The TMDL considers all sources contributing fecal coliform to Mountain Run. The sources can be separated into nonpoint and point (or direct) sources. The incorporation of the different sources into the TMDL are defined in the following equation:

$$\text{TMDL} = \text{WLA} + \text{LA} + \text{MOS}$$

where,

- WLA = waste load allocation (point source contributions);
- LA = load allocation (nonpoint source contributions); and
- MOS = margin of safety.

### **5.2 Margin of Safety**

A margin of safety (MOS) is included to account for any uncertainty in the TMDL development process. There are several different ways that the MOS could be incorporated into the TMDL (EPA, 1991). For the Mountain Run TMDL, a MOS of 5% was incorporated explicitly in the TMDL equation, in effect reducing the target TMDL from the state water quality standard for fecal coliform – a 30-day geometric mean concentration of 200 cfu/100mL – to 190 cfu/100mL.

### **5.3 Waste Load Allocation**

All VPDES-permitted point source discharges with allowable [FC] were added to the model. Of these, only the Culpeper WWTP is currently on line. The Culpeper WWTP currently applies tertiary treatment to its waste discharge, and produces essentially fecal coliform-free discharge. For the existing loading condition, the Culpeper WWTP daily discharge was used together with its reported concentration of 0 cfu/100 mL. All of these permitted facilities have both permitted monthly-averaged daily flow rates and a

permitted discharge limit for fecal coliform of 200 cfu/100 mL. Under the future scenario and all TMDL reduction scenarios, this reserved fecal coliform loading was incorporated for each facility as their maximum permitted daily flow rate times the permitted fecal coliform concentration. The annual load contributed by each facility is given in Table 5-1.

**Table 5-1. Annual Fecal Coliform WLA**

<b>Permitted Discharge Facility</b>	<b>Annual Fecal Coliform Load (cfu/yr)</b>
Mt. Dumplin STP	$8.290 \times 10^{11}$
Ferguson STP	$6.908 \times 10^9$
Mountain Run STP	$8.290 \times 10^{11}$
Town of Culpeper WWTP	$8.290 \times 10^{12}$
<b>ΣWLA (Load to Stream)</b>	<b><math>9.955 \times 10^{12}</math></b>

#### **5.4 Load Allocation**

The existing fecal coliform loading from the Mountain Run watershed is attributed solely to non-point sources as detailed previously (including direct nonpoint sources such as “straight pipes” and direct deposition by livestock in streams). Reductions in fecal coliform loading will be required from some combination of these sources in order to meet the designated TMDL. The existing fecal coliform concentrations and loadings were first defined and separated by source and sub-watershed to assist in the analysis. Dominant fecal coliform sources identified in the analysis were then subjected to five different allocation/reduction schemes for meeting the TMDL target, using future conditions as the base against which reductions were made.

#### **5.5 Existing Conditions**

After all of the hydrology and fecal coliform parameters were calibrated and incorporated into the model, the model was run under existing conditions of land use and fecal coliform loading.

Table 5-2 shows the total annual fecal coliform load applied to the pervious and impervious areas of the watershed, averaged over the 4-year simulation period. Table 5-3 shows the total annual fecal coliform load delivered to the edge-of-stream from both the land-based sources and the direct nonpoint sources which contribute directly to the stream. The last line in Table 5-3 shows the amount of load delivered to the outlet from each source. The resulting in-stream concentrations at the outlet from all sources combined are illustrated in Figures 5-2 and 5-3 for daily average fecal coliform concentrations, and 30-



Citizens may comment on the proposed reissuance of a permit that allows the release of treated wastewater into a water body in Culpeper County, Virginia

PUBLIC COMMENT PERIOD: May 7, 2008 to 5:00 p.m. on June 6, 2008

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater owners or operators of municipal facilities that discharge or propose to discharge wastewater into the streams, rivers or bays of Virginia from a point source must apply for this permit. In general, point sources are fixed sources of pollution such as pipes, ditches or channels. The applicant must submit the application to the Department of Environmental Quality, under the authority of the State Water Control Board.

PURPOSE OF NOTICE: To invite the public to comment on the draft permit.

NAME, ADDRESS AND PERMIT NUMBER OF APPLICANT: Martha Ferguson  
P.O. Box 153, Brandy Station, VA  
VA0062529

NAME AND ADDRESS OF FACILITY: Ferguson Sewage Treatment Plant  
17311 Brandy Road, Culpeper, VA 22701

Project description: Martha Ferguson has applied for a reissuance of a permit for Ferguson STP in Culpeper County, Virginia. The applicant proposes to release treated sewage at a rate of 0.0025 Million Gallons per Day with a proposed expanded flow of 0.0395 MGD into Jonas Run, UT in Culpeper County that is in the Rappahannock watershed. A watershed is the land area drained by a river and its incoming streams. The sludge will be disposed at a larger wastewater treatment plant. The permit will limit the following pollutants to amounts that protect water quality: pH, cBOD, Chlorine, TSS, TKN, D.O. and *E. coli*.

How a decision is made: After public comments have been considered and addressed by the permit or other means, DEQ will make the final decision unless there is a public hearing. DEQ may hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the proposed permit. If there is a public hearing, the State Water Control Board will make the final decision.

HOW TO COMMENT: DEQ accepts comments by e-mail, fax or postal mail. All comments must be in writing and be received by DEQ during the comment period. The public also may request a public hearing.

WRITTEN COMMENTS MUST INCLUDE:

1. The names, mailing addresses and telephone numbers of the person commenting and of all people represented by the citizen.
2. If a public hearing is requested, the reason for holding a hearing, including associated concerns.
3. A brief, informal statement regarding the extent of the interest of the person commenting, including how the operation of the facility or activity affects the citizen.

TO REVIEW THE DRAFT PERMIT AND APPLICATION: The public may review the documents at the DEQ-Northern Regional Office every work day by appointment.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION:

Name: Douglas Frasier

Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193

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**State "Transmittal Checklist" to Assist in Targeting  
Municipal and Industrial Individual NPDES Draft Permits for Review**

**Part I. State Draft Permit Submission Checklist**

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name:	Ferguson Sewage Treatment Plant
NPDES Permit Number:	VA0062529
Permit Writer Name:	Susan Mackert
Date:	August 28, 2007

Major ☐Minor ☒Industrial ☐Municipal ☒**I.A. Draft Permit Package Submittal Includes:**

	Yes	No	N/A
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?	X		
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?			X
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?			X
8. Whole Effluent Toxicity Test summary and analysis?			X
9. Permit Rating Sheet for new or modified industrial facilities?			X

**I.B. Permit/Facility Characteristics**

	Yes	No	N/A
1. Is this a new, or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet <b>or</b> permit contain a description of the wastewater treatment process?	X		
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?			X
5. Has there been any change in streamflow characteristics since the last permit was developed?			X
6. Does the permit allow the discharge of new or increased loadings of any pollutants?			X
7. Does the fact sheet <b>or</b> permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water?		X	
a. Has a TMDL been developed and approved by EPA for the impaired water?			X
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?			X
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?			X
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		X	
10. Does the permit authorize discharges of storm water?		X	

<b>I.B. Permit/Facility Characteristics – cont.</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?			X
12. Are there any production-based, technology-based effluent limits in the permit?	X		
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?	X		
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16. Does the permit contain a compliance schedule for any limit or condition?		X	
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?		X	
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	X		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?		X	
20. Have previous permit, application, and fact sheet been examined?	X		

## Part II. NPDES Draft Permit Checklist

### Region III NPDES Permit Quality Checklist – for POTWs (To be completed and included in the record only for POTWs)

II.A. Permit Cover Page/Administration	Yes	No	N/A
1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

II.B. Effluent Limits – General Elements	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the fact sheet discuss whether “antibacksliding” provisions were met for any limits that are less stringent than those in the previous NPDES permit?			X

II.C. Technology-Based Effluent Limits (POTWs)	Yes	No	N/A
1. Does the permit contain numeric limits for <u>ALL</u> of the following: BOD (or alternative, e.g., CBOD, COD, TOC), TSS, and pH?	X		
2. Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133?	X		
a. If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133.103 has been approved?			X
3. Are technology-based permit limits expressed in the appropriate units of measure (e.g., concentration, mass, SU)?	X		
4. Are permit limits for BOD and TSS expressed in terms of both long term (e.g., average monthly) and short term (e.g., average weekly) limits?	X		
5. Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day average and 45 mg/l BOD5 and TSS for a 7-day average)?		X	
a. If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations?			X

II.D. Water Quality-Based Effluent Limits	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	X		
2. Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL?	X		
3. Does the fact sheet provide effluent characteristics for each outfall?	X		
4. Does the fact sheet document that a “reasonable potential” evaluation was performed?	X		
a. If yes, does the fact sheet indicate that the “reasonable potential” evaluation was performed in accordance with the State’s approved procedures?	X		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?	X		
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have “reasonable potential”?	X		
d. Does the fact sheet indicate that the “reasonable potential” and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations)?			X
e. Does the permit contain numeric effluent limits for all pollutants for which “reasonable potential” was determined?	X		
II.D. Water Quality-Based Effluent Limits – cont.	Yes	No	N/A

5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term AND short-term effluent limits established?	X		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the record indicate that an “antidegradation” review was performed in accordance with the State’s approved antidegradation policy?	X		

<b>II.E. Monitoring and Reporting Requirements</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
1. Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations?	X		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?		X	
3. Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements?		X	
4. Does the permit require testing for Whole Effluent Toxicity?		X	

<b>II.F. Special Conditions</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
1. Does the permit include appropriate biosolids use/disposal requirements?	X		
2. Does the permit include appropriate storm water program requirements?			X

<b>II.F. Special Conditions – cont.</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
3. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?			X
4. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?			X
5. Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]?		X	
6. Does the permit authorize discharges from Combined Sewer Overflows (CSOs)?		X	
a. Does the permit require implementation of the “Nine Minimum Controls”?			X
b. Does the permit require development and implementation of a “Long Term Control Plan”?			X
c. Does the permit require monitoring and reporting for CSO events?			X
7. Does the permit include appropriate Pretreatment Program requirements?			X

II.G. Standard Conditions	Yes	No	N/A
1. Does the <b>permit</b> contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?	X		
<b>List of Standard Conditions – 40 CFR 122.41</b>			
Duty to comply	Property rights	Reporting Requirements	
Duty to reapply	Duty to provide information	Planned change	
Need to halt or reduce activity	Inspections and entry	Anticipated noncompliance	
not a defense	Monitoring and records	Transfers	
Duty to mitigate	Signatory requirement	Monitoring reports	
Proper O & M	Bypass	Compliance schedules	
Permit actions	Upset	24-Hour reporting	
		Other non-compliance	
2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]?	X		

## Part II. NPDES Draft Permit Checklist

**Part III. Signature Page**

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	<u>Susan Mackert</u>
Title	<u>Environmental Specialist II</u>
Signature	<u></u>
Date	<u>August 28, 2007</u>